

What is claimed is:

1. An apparatus for digitally compensating the reception of radio frequencies signals, comprising:

a first oscillator;

5 a downconverter driven by said first oscillator, said downconverter having a mixer;

a first frequency monitor adapted to measure the frequency of said first oscillator;

a second oscillator;

an analog-to-digital converter driven by said second oscillator;

10 a digital receiver driven by said second oscillator, said digital receiver having a numerically controlled oscillator;

a second frequency monitor adapted to measure the frequency of said second oscillator;

a digital demodulator; and

15 a computer adapted to receive the frequency measurement of said first oscillator from said first frequency monitor, to receive the frequency measurement of said second oscillator from said second frequency monitor, to calculate the errors of said first oscillator and said second oscillator, to calculate a frequency error produced by said mixer, and to calculate a numerically controlled oscillator setting;

20 wherein said numerically controlled oscillator is adapted to receive said numerically controlled oscillator setting from said computer to cause said digital receiver to transmit a signal of a desired frequency to said digital demodulator.

2. An apparatus for digitally compensating the transmission of radio frequencies , comprising:

a first oscillator;

a digital modulator having a numerically controlled oscillator and a mixer,

5 wherein said digital modulator and said numerically controlled oscillator are driven by said first oscillator;

a first frequency monitor that is adapted to measure the frequency of said first oscillator;

a digital to analog converter driven by said first oscillator;

10 a second oscillator;

an upconverter driven by said second oscillator;

a second frequency monitor adapted to measure the frequency of said second oscillator; and

15 a computer adapted to receive the frequency measurement of said first oscillator from said first frequency monitor, to receive the frequency measurement of said second oscillator from said second frequency monitor, to calculate the errors of said first oscillator and said second oscillator, to calculate a frequency error produced by said upconverter, and to calculate a numerically controlled oscillator setting;

20 wherein said numerically controlled oscillator is adapted to receive said numerically controlled oscillator setting from said computer to cause said upconverter to transmit a signal of a desired frequency to an antenna.